### TAB G

# SATISFACTION

A BEHAVIORAL PERSPECTIVE ON THE CONSUMER

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# The Expectancy Disconfirmation Model of Satisfaction

The reader may have noticed more and more frequent references in the promotional media to products and services delivering "unexpected pleasure," "unexpected taste," etc., or the increasingly popular claims by firms that they will "exceed your expectations." In still other versions of this theme, Holiday Inns promised prospective guests that they would encounter "no surprises," while other firms offer assurances that the consumer will encounter no "hidden charges." What do all these promises have in common? They guarantee that product or service performance will contrast favorably with the expectations that the consumer is likely to have had prior to purchase.

Note that in the first two examples, those of unexpected pleasure and exceeding expectations, the consumer has been promised *more positive* performance than normally anticipated. In fact, one automaker has taken this promise to excess, literally. In a recent Toyota Supra advertisement, the bold copy reads, "It is pure excess." Reading on, one finds that this car delivers the highest horsepower-to-weight ratio in its class and can accelerate to 60 miles per hour in 4.6 seconds. Whereas racing buffs might find this level of performance "ordinary," the advertiser most probably hopes that this same performance will be perceived as exceeding expectations for this type of car in the minds of "sporty car" consumers.

In contrast, the implicit promise made in the claims of no surprises and no hidden charges is that the provider will *not* deliver a level of *more negative* performance than is normally anticipated. This is an effort to allay fears or apprehensions the consumer may have of negative surprises—anticipations of unforeseeable outcomes, as discussed in Chap. 3.

These examples illustrate the more recent interpretation of postpurchase or postuse response as involving a comparison to expectations or to other judgmental standards. This approach makes the nature of the consumer's rating explicit so that when a consumer assigns a negative or positive rating to performance, the researcher is in a position to answer the question, Compared to what? Discussion begins with a review of the origins of this notion.

#### HISTORY OF THE EXPECTANCY DISCONFIRMATION MODEL IN CONSUMER RESEARCH

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Although comparative models of satisfaction date back many years, Porter can be credited with early empirical applications in the field of job satisfaction.<sup>2</sup> In his framework, the standard of comparison was the worker's perception of how much of a job facet (e.g., pay) there "should be." This was compared to the worker's perception of how much of the facet "is there now." A similar perspective was proposed by Locke, who stated that job (dis)satisfaction is "a function of the perceived relationship between what one wants from one's job and what one perceives it as offering or entailing." Ilgen provided further empirical support for the Porter and Locke theories in the early 1970s.<sup>4</sup>

Interestingly, these perspectives did not create great interest in the literature, and the number of studies testing the "should be—is there" difference remains small in comparison to the more dominant paradigm in job satisfaction, that of job facet identification research. This latter tradition is characterized by attempts at defining both the specifics and the dimensions of the employee's life in the workplace. Typically, need theories, such as that of Maslow (to be discussed in Chap. 5), are used to provide a conceptual basis for the list of job facets. In this regard, the main thrust in job satisfaction research is not much different from the prevailing tradition in customer satisfaction, that of identifying potential attribute-based satisfiers and dissatisfiers.

Despite this early empirical work in the job satisfaction literature, the notion that individuals make performance judgments with reference to a standard is not unique to any one field, and no one discipline can lay claim to it. Generally, this concept is contained under the umbrella term *discrepancy theory*, and applications appear in literatures other than those relating to one's job. For example, discrepancy theory can be found in models of satisfaction with media communications, where the performance judgment and its comparative referent are referred to as *gratifications received* and *gratifications sought*. In the quality-of-life literature, these concepts are referred to as *what one has* (in life) versus *what one wants, deserves, or expects in the future*. And, with regard to specific dimensions of life satisfaction, housing (dis)satisfaction, e.g., has been found to be based on "deficits" between the number of bedrooms a family has and the number considered typical for a family of that size.

One unfortunate aspect of the term *discrepancy* in the many fields in which it appears (and of *disconfirmation*, as it is more commonly called in consumer behavior) is that it carries a negative connotation in the minds of individuals. Phrases such as *discrepant from* and *disconfirmed expectations* usually imply a negative comparison, in that what was received is usually less than what was ordinary or expected. This is an important issue in consumer satisfaction, as negative discrepancies would appear to only operate on a tendency toward dissatisfaction.

While preventing dissatisfaction is a worthy and necessary goal, management should be more interested in what it can do to foster satisfaction. More importantly, the question of what the marketer can do to gain a competitive advantage by providing more *satisfaction* than the competition has even greater relevance today. Unfortunately, the notion of providing more satisfaction than one's competitors is

foreign to the concept of need satiation discussed in Chap. 1 and to need satisfaction models generally.

How does greater satisfaction than mere satiation occur, and how can management bring this situation about? An attempt at answering these questions will be made throughout this book. For now, it can be said that this issue is implicitly addressed in the adaptations of discrepancy theory used in the consumer behavior literature. This is not to say that consumer researchers had qualitatively better models; rather, they approached the issue from a standpoint that reflected consumer experiences with products and services in the marketplace, as opposed to the workplace or other environments.

#### THE CONSUMER BEHAVIOR APPROACH

The first behavioral work in consumer satisfaction dates to the early 1970s. At that time, researchers attempted to apply dissonance theory<sup>11</sup> (discussed more fully in Chap. 9) to consumer satisfaction in the belief that shopping effort would cause consumers to become committed to their expectations for products.<sup>12</sup> Researchers argued that, in effect, shopping effort generates knowledge and a degree of confidence in that knowledge. Under these conditions, product performance not matching one's expectations will create psychological discomfort (dissonance), as this purchase outcome will reflect poorly on the consumer's decision in light of the effort expended. Therefore, consumers were thought to reinterpret performance so as to be consistent (or nearly so) with one's expectations as a dissonance reduction strategy. Interestingly, this same interpretation was given to situations where the product exceeded the consumer's expectations.

This focus on expectations—and the counterintuitive (to some) notion that consumers would disbelieve poor performance when expectations were high and, even more astoundingly, disbelieve good performance when expectations were low—sparked a search for alternative interpretations of how consumers evaluate purchase outcomes. Thought to be especially promising at the time was the hybrid framework of assimilation-contrast theory. This perspective was borrowed from the literature on the effect of communicator-recipient similarity as an influence on attitude change. Assimilation-contrast theory asserts that individuals have the potential for two opposing responses depending on the degree to which the message communicator is perceived as similar to or different from the observer. Specifically, perceived communicator-recipient similarities should result in the phenomenon of assimilation while perceived differences should result in contrast, as described next.

#### Assimilation

Briefly, research supporting the assimilation effect suggested that communicators sharing something in common with members of an audience (e.g., views, values, lifestyles) were frequently judged to be similar or "just like me." This perceived similarity facilitated communicator effectiveness, as the audience would assimilate the communicator's viewpoints into its own. <sup>14</sup> Thus, the assimilation framework, like dissonance theory, emphasizes a reluctance on an individual's part to acknowl-

edge discrepancies from a previously held position. It relies on individuals' ability to explain away (rationalize) apparent discrepancies.<sup>15</sup>

To illustrate, Fig. 4-1 shows a typical issue, such as balancing the federal budget, with both pro (10) arguments and con (-10) arguments. Assume there is an individual who is moderately against the issue, standing at -5, and a communicator wishing to move this individual to the pro side. The communicator's message can be described as moderately pro at +5. If the recipient views the communicator as similar, in terms of values, lifestyles, etc., the message will be heard as more neutral (0), and the recipient will be moved toward neutrality. Thus, the communicator will feel partially successful at changing the recipient's attitude toward the issue. The recipient will probably proclaim that the two are in "essential agreement." The arrow from +5 to 0 is the degree to which the recipient has assimilated the message.

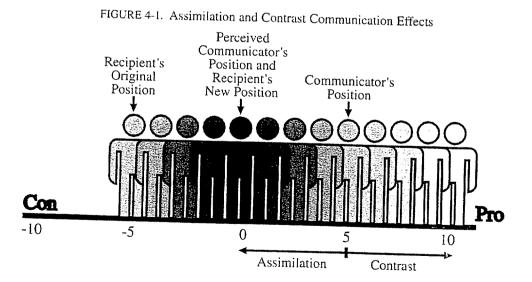
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#### Contrast

The contrast effect is quite the opposite. It has been described as a tendency to "exaggerate the discrepancy between one's own attitudes and the attitudes represented by opinion statements endorsed by other people with opposing views." Thus, when exposed to a communicator or communication perceived as different, according to contrast theory, individuals will exaggerate the discrepancy, making it larger than it is in reality. This is shown by the rightmost arrow in Fig. 4-1. In effect, the communicator is perceived not as moderately pro, but as radically pro. Needless to say, the recipient will not be swayed by the message and may even be pushed deeper into the con region, a phenomenon known as reactance.

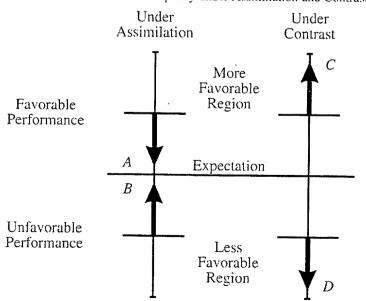
In effect, if contrast were applied to a consumption context, then poor performance would be worse than simply poor and good performance would be better than a rating of good would suggest. Satisfaction researchers were, not unexpectedly, taken with this interpretation as it complemented assimilation theory nicely and provided for an unambiguous test of which of the two theoretical interpretations would dominate satisfaction decisions.



The extreme differences in reaction to communication (or performance) discrepancies posed by these divergent perspectives are shown in Fig. 4-2. Under assimilation, perceived product or service performance, whether it is more or less favorable than the recipient's expectation, is drawn to the original expectation level, as shown by the A and B arrowheads. Under contrast, the opposite effect occurs. Here, favorable results are seen as more favorable, as shown by arrowhead C, whereas unfavorable results are viewed as even less favorable, as displayed by arrowhead D. The differences between A and C and between B and D show the very disparate predictions made by the two perspectives. At the same time, this divergence facilitated testing. Researchers needed only to create expectations and provide products at variance with those expectations. The final product rating could be inspected to observe whether it was more aligned with A and B or with C and D.

This assimilation versus contrast controversy was fueled by a number of early studies which appeared to support either an assimilation interpretation. Or a contrast interpretation. A study by Anderson is particularly instructive in this regard, as it tested assimilation against contrast and even provided a rationale for the operation of both in different situations. Specifically, Anderson argued that assimilation will hold when performance was similar to expectations, or close enough so that the consumer could view it as similar. This phenomenon was described as occurring in the *region of acceptance*. However, when performance deviated substantially from expectations and the consumer could no longer view performance as similar, contrast predictions held. In this *region of rejection*, the product could be better than good or poorer than bad. Using brochures of ballpoint pens to create differing expectation levels, Anderson provided results that largely argued for an assimilation effect.

FIGURE 4-2. Reaction to Discrepancy under Assimilation and Contrast



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#### Shortcomings of Assimilation versus Contrast Interpretations

One shortcoming of all early studies, including Anderson's work, is that only two variables of a three-variable framework were investigated. Most studies manipulated (or measured) expectations, usually through product information. Sometimes the performance level was also manipulated, although it was not uncommon for researchers to hold performance constant for all subjects. What all studies omitted, however, was the third concept of interest—the perceived expectation-performance discrepancy; no direct measures of this difference were attempted. Thus, the discrepancy as perceived by the subject was inferred by the researcher and could not be investigated as an independent concept. It was not surprising, then, that an assimilation-to-expectations effect was so frequently observed.

This misunderstanding about how discrepancies affect satisfaction judgments was brought to light by two developments. The first was provided by Weaver and Brickman in the field of social psychology.<sup>21</sup> They were among the first to note the observation made in the previous paragraph, that prior research had omitted measurement of discrepancy as a separate key variable. Moreover, they provided the rationale for why this omission was so prevalent. Namely, researchers had been assuming that the nature of the perceived discrepancy could be derived from the following arguments:

- 1. A poor outcome, given high expectations, results in a negative discrepancy and disappointment.
- 2. A good outcome, given low expectations, results in a positive discrepancy and glee.

Weaver and Brickman made a strong case for the operation of a separate discrepancy effect apart from expectations and outcomes, and they argued that this effect required investigation. In an ingenious card game experiment, where discrepancy was objectively manipulated independently of expectations and performance,<sup>22</sup> these authors were able to show the unique discrepancy effect, thereby calling into question arguments 1 and 2.

The second development appeared in consumer satisfaction research and involved direct measurement of the discrepancy.<sup>23</sup> Rather than simply assuming that consumers see discrepancies as intended by the researcher's manipulations, this new phase of research asked the consumer to scale his or her discrepancy feelings as to their direction and strength. Two of the most common forms of this scale are as follows:

My expectations for this product Too high: It was poorer than I thought.	/service were: Accurate: It was just as I thought.	Too low: It was <i>better</i> than I thought.
Overall, this product or service o Much worse than expected	r feature or attribute was: As expected	Much better than expected

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These scales are generic and have numerous applications. For example, the entire consumption experience can be judged on the degree to which it was better or worse than expected, as can individual attributes. In air travel, e.g., the entire trip can be assessed, as can each minute element of the trip from the ticket agent's speed, to the waiting area, to the food in flight, to the landing, etc. Other possibilities, which are discussed later, include dimensions (attribute groups) of performance and the benefits (good things) reaped from consumption as separate from the problems (bad things) encountered.<sup>24</sup>

#### Disconfirmation Defined

The preceding scales represent the consumer response of disconfirmation, more specifically disconfirmation of preperformance standards. Because the early work in consumer satisfaction was conducted with predictive expectations as a standard, the phrase disconfirmation of expectations or expectancy disconfirmation has come to apply to this concept. As noted in Chap. 3, many standards that consumers bring to the consumption experience can be disconfirmed, so an alternative phrase to describe the discrepancy from standard could be simply disconfirmation. In this chapter and throughout this book, the phrases expectancy disconfirmation and disconfirmation will be used interchangeably, unless otherwise stated.

Note that the disconfirmation scales are two-sided, or bipolar. This convention permits disconfirmation to take on a positive as well as a negative value. In the same way as product performance can be worse than expected, it can also be better than expected. Because the phrase disconfirmation without the valence qualifier is ambiguous as to direction, the phrase negative disconfirmation will refer to the negative discrepancy that occurs when performance is below standard, and positive disconfirmation will refer to the positive discrepancy that occurs when performance is above standard. When performance is equal to standards or expectations, a zero disconfirmation or, simply, a confirmation of expectations exists.

In an early article on the topic, this author proposed conditions which can give rise to the three states of positive, zero, and negative disconfirmation in terms of valenced expectations and the occurrence of outcomes, as shown in Table 4-1.25 Note that disconfirmation actually has three components: the event, its probability of occurrence, and its (un)desirability. As noted in Chap. 2, the valence of the event is frequently taken as a given or as known. Some illustrations of the conditions for disconfirmation, presented next, may help the reader with the disconfirmation concept.

TABLE 4-1. Categories of Disconfirmation and States of Nature

State of Disconfirmation	Consumer's Experience
Positive	Low-probability desirable events occur, and/or high-probability undesirable events do not occur.
Zero	Low- and high-probability events do or do not occur as expected.
Negative	High-probability desirable events do not occur, and/or low-probability undesirable events occur.

#### Negative Disconfirmation

Because the ordinary interpretation of disconfirmation is typically negative, discussion of the negative disconfirmation state will provide a familiar starting point. Under the common interpretation of negative disconfirmation, performance falls short of expectations in an absolute sense. To illustrate, a student may expect a B in a course. Receiving a C (or worse) would be perceived as a negative disconfirmation by the student. This is an example of the most common form of disconfirmation, that of comparing a received performance level to one that was expected with near certainty.

In the more complex case, however, performance falling short of expectations must be qualified with the likelihood of this event occurring and the valence of the performance level. From Table 4-1, note that negative disconfirmation includes both the nonoccurrence of highly probable, desirable events and the occurrence of remote-probability negative events. Thus, a poor acting performance by a top-rated movie star or a boring movie from an Oscar-winning director illustrates the first case. Similarly, a 6.5 Richter scale earthquake in a low-risk residential location with no prior quake activity illustrates the second. Admittedly, these are extreme cases, but they make the point.

#### Positive Disconfirmation

Positive disconfirmation, where performance exceeds expectations, is subject to the same interpretation. As with the negative case, performance exceeding expectations is exemplified by the student in the preceding example receiving an A after expecting a B. From Table 4-1, however, one sees that positive disconfirmation is also exhibited when highly probable undesirable events do not occur or when very improbable desirable events do. Getting through a winter flu season without so much as a cold is an example of the first case, while winning a lottery illustrates the second.

#### Zero Disconfirmation

Last, confirmation obtains when high-probability events occur and low-probability events do not, in about the frequency one would predict, regardless of the valence of the event. As noted previously, both desirable and undesirable events are equally confirmable if they occur as expected. Thus, receiving gifts from family members on one's birthday and enduring cold temperatures in the dead of winter are confirmations despite their opposing valences.

As disconfirmation measurement is practiced, it is common to assume the valence of the event and to allow the consumer to mentally factor in the event's prior probability in response to a better than/worse than scale. Although it is possible to measure valences and probabilities and combine them, as was done in one rather involved study by the author, <sup>26</sup> the results were not greatly superior to the better than/worse than scale. If greater diagnostic information is required to more fully interpret the meaning of disconfirmation in a particular context, the more complicated valenced approach may prove fruitful.

#### Objective versus Subjective Disconfirmation

The better than/worse than measure is usually obtained as a self-reported score on a survey or as a verbal response to a personal or phone interview. Note that this is

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a *subjective* measure in that no actual numeric comparison was made to the expectation level. One might question, however, whether consumers actually make numeric comparisons (e.g., subtracting an expectation score from a performance score) in a product or service evaluation. Although there is no direct evidence of this, intuition and anecdotal testimony would suggest that many do not and others do, at least for some products and events. For example, the job of a comedian is to generate laughs in an audience, but audience members are not known to count laughs or gauge their intensity. After the performance, however, most are able to say whether the comedian was funnier or less funny than expected. Alternatively, the reader might reflect on remembrances of being short-changed or given too much change in a purchase transaction. How would one know if this occurred unless the correct change were held as an expectation and comparisons were made to this amount? In this example, a comparison to expectations is most assuredly made.

How would one know if numeric comparisons were made? As an exercise, one can entertain the possibilities that consumers may or may not calculate these differences with the following hypothetical example beginning in Table 4-2.

Assume that both consumer A and consumer B evaluate only one critical attribute in purchasing an automobile, gas mileage in miles per gallon. Assume also that both buy identical cars which yield identical gas mileage and that this mileage is typical for this brand of car. At this point, the naive observer might assume that both consumers would have identical satisfaction levels. To the observer's chagrin, however, the consumers couldn't be further apart in their judgments, as shown in the table. As an aside, this example illustrates the typical failing of a performance-only measurement system.

One likely answer to this paradox can be found in Table 4-3, where the consumers have provided a more complete accounting of their mental processes. Here, one sees the explanation for the very divergent summary feelings of the two consumers. For any number of reasons, some of which were noted in Chap. 3, these consumers had very different expectations of what they were to receive. At this point, it does not matter where these expectations originated; the fact is that they were individually held nonetheless.

It appears that both consumers are diligent measurers of the one dominant attribute, gas mileage, and that they calculated the actual difference between their expectations and their outcomes. This is how they arrived, respectively, at the +5 and -5 differences shown in Table 4-3. When asked to interpret these differences, consumer A replied that the outcome was better than expected, and B described the outcome as worse than expected. In all likelihood, this is the reason for the differing satisfaction levels.

A reasonable question at this point is, Why is the subjective interpretation needed if the calculation is available to the consumer and, thus, to the researcher?

TABLE 4-2. Hypothetical Consumers with Identical Outcomes and Different Satisfactions

Consumer A	Consumer B	
25 miles per gallon	25 miles per gallon	
"Great"	"Mad as hell"	
	25 miles per gallon	

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	Levels of Two Consumers	
	Consumer A	Consumer B
Expectation	20 miles per gallon	
Performance outcome	25 miles per gallon	30 miles per gallon
Numeric difference		25 miles per gallon
Subjective disconfirmation	+5 miles per gallon	−5 miles per gallon
	Better than expected	Worse than expected
Expressed (dis)satisfaction	"Great"	"Mad as hell"

A first answer is that the numeric expectation level, the numeric performance level, and the consumer's calculation (and even its accuracy) are typically *not* available to the researcher.<sup>27</sup> In fact, many product and service attributes are not subject to numeric evaluation at all. How, for example, do consumers quantify the comfort level of the car's seating, or of the richness of the upholstery? If the consumer cannot quantify or scale expectations and performance, then disconfirmation can only exist at the subjective level.

A second answer to this question is that *only the consumer can attach the proper amount of valence to the difference he or she calculates or assumes.* This valence, then, determines *how much* better or worse performance is perceived to be; the consumer then scales the amount of perceived positive or negative disconfirmation on the better than/worse than scale.

Now, assume that the consumer omits one of the numeric steps in two different ways. First, what if consumers are less than diligent and fail to maintain the proper records for calculating gas mileage, a step which requires a log of distance traveled and a measure of the volume of gasoline used? Can the consumer still respond to the subjective disconfirmation query? Most certainly, as long as a perception of better than/same as/worse than is sensed. This "sense" has been shown to exist in many studies (to be discussed) and can exist for purchases having no objective performance dimensions at all. Consider artwork for the purpose of aesthetic pleasure, insurance in the absence of a claim for the sense of security received, and contributions to charity (an intangible "purchase") for the sense of altruistic personal satisfaction. In fact, in an early investigation, 28 the author studied the subjective disconfirmations of individuals receiving a flu inoculation against the threat of swine flu in 1976, an epidemic which did not occur. Many of these individuals expressed positive disconfirmation as a result of receiving this protection which, in fact, did not protect them against other strains of the flu. Still other individuals reported negative disconfirmation with getting the shot, even though they could not have caught (and did not catch) swine flu. Where did these sham perceptions originate? They were apparently (and wrongly) sensed.

In a second example of missing disconfirmation measures, researchers may be able to infer disconfirmation by collecting only expectation and performance data, in effect, data on the first two rows of Table 4-3. Could assumptions be made regarding the likely satisfaction of the two consumers? Perhaps, but not necessarily. The researcher would be able to calculate objective differences between these values. Unfortunately, this difference exists only as a *managerial* calculation and may not be as accurate as the consumer would necessarily find it. Three reasons for this disparity exist.

PART TWO Basic Satisfaction Mechanisms Lack of Precision

To illustrate the first reason, consider, instead of gas mileage, a more subjective automobile attribute—comfort. Assume, further, that both the expectation and performance judgments are obtained on an uncomfortable/comfortable 1-to-7 scale such as the following:

#### Uncomfortable 1 2 3 4 5 6 7 Comfortable

Because comfort, unlike gas mileage, is not quantifiable by the consumer, there is obviously less precision here, for it is not known exactly what the middle scale points represent on a "true" comfort continuum. Researchers refer to this as an *ordinal* scale because the intervals between the numbers cannot be assumed to be constant. Thus, any difference score calculated by using this scale reflects the imprecision in both the expectation and the performance numbers.

Implicit Weightings of Expectations and Performance

A second reason why a difference score may not reflect a consumer-generated subjective score is that the consumer may implicitly weight either expectations or performance more highly than the other. For example, expectations may be only vaguely recalled because of the time interval between purchase and use. This example of availability, mentioned in Chap. 3, is one of many consumer decision-making strategies. Unequal weightings could also arise because of the difference in the way consumers who assimilate (thereby placing greater weight on expectations), and consumers who contrast (thereby placing greater weight on performance), make judgments.

#### Valence

Finally, as noted, the raw difference score does not contain the consumer's valence toward the discrepancy. To return to the gas mileage example, the 5 miles per gallon (positive) difference may be only "slightly" better than expected to one consumer but may be "much, much" better to another. The subjective difference score clearly accounts for this difference in interpretation.

#### **Predicting Satisfaction**

Is there evidence for the superiority of subjective disconfirmation over calculated disconfirmation in the prediction of satisfaction? Yes. A number of studies have examined both the calculated and single-score varieties of disconfirmation, most using rating scale scores and one using objective calculations of disconfirmation in dollars of profit. The results of all studies were similar, with the great majority of the evidence suggesting that the subjective version of disconfirmation correlates more highly with the satisfaction scales than do the difference scores. Moreover, when analyzed in an ordering of cause and effect, the following configuration of concepts has consistently found to best fit the data:

Objective disconfirmation  $\rightarrow$  Subjective disconfirmation  $\rightarrow$  Satisfaction

This sequence of events forms the basis for the expectancy disconfirmation model of consumer satisfaction to be presented here. As shown, this sequence por-

trays a calculated expectation-performance difference (if performed) as input to the consumer's subjective interpretation of this difference. The subjective interpretation then becomes the most immediate antecedent of satisfaction. If no objective score is available, then a subjective judgment is "sensed." Expectations and performance are implicitly incorporated into the disconfirmation judgment in this sequence.

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The preceding discussion of disconfirmation has not explicitly considered the assimilation effect observed in a number of studies. The assimilation phenomenon has not been forgotten, just put aside. The following discussion considers its role in the satisfaction response. In doing so, it becomes necessary to reconcile the differences, if any, between the role of assimilation and contrast in satisfaction versus that of expectation and disconfirmation.

#### Expectation and Disconfirmation as Proxies for Assimilation and Contrast

Recall in the discussion of assimilation and contrast that early theorists assumed that the effects of these two influences were mutually exclusive. That is, either consumers were exclusively assimilation-oriented or contrast-oriented, or they assimilated for performance close to expectations and contrasted for performance more distant. This can be seen in Fig. 4-1, where the perceived communicator's position would move to the left under assimilation and to the right under contrast. In a sense, this assumption made the two strategies negatively correlated in that the presence of one implied the absence of the other, and vice versa. To test this notion, it is necessary to measure consumers' use of these strategies.

This effort would be facilitated if one could assume that the assimilation strategy is one of heavy reliance on one's prior expectations. Thus, as performance is assimilated toward the previously formed expectations, expectations then become the basis for the evaluation itself and expectation levels should dominate evaluations subsequent to the performance judgment, such as satisfaction.

Alternatively, contrast is an exaggeration of the performance-expectation discrepancy. Performance better than expectations is considered exceptionally good while performance poorer than expectations is exceptionally bad. Since this performance-expectancy discrepancy has already been defined as disconfirmation, it would seem that contrast judgments are disconfirmation-driven. Thus, disconfirmation, whether it be positive or negative, would appear to provide an excellent proxy for contrast.

Since measures of both expectation and disconfirmation are available, it is possible to test for their dependence/independence. More specifically, it is possible to test for the validity of arguments 1 and 2 at page 103. Note that these contain an implicit assumption of a negative correlation between expectation and disconfirmation. This results from the nature of the arguments themselves, namely, that expectation levels that are unreasonably high will always produce a negative disconfirmation and levels that are too low will always produce a positive disconfirmation. At these extremes, it is assumed that performance cannot exceed or fall short of the respective expectation levels.

This assumption of a negative correlation was tested in an early study by the author.<sup>31</sup> From a sample of students who rated a new automobile model *before* 

inspecting and driving it, actual predictive expectations were obtained. After the inspection and test-drive, subjective disconfirmation scores and an overall summary rating representing satisfaction were measured. The conceptual framework represented by this simplified scheme (i.e., performance is omitted) appears in Fig. 4-3. Note that three relations are displayed. Relation A is the expectation (assimilation) effect, relation B is the disconfirmation (contrast) effect, and relation C is the correlation between expectation and disconfirmation. Before one examines the results, it is instructive to explore the three possible outcomes of relation C.

#### Relation C Is Negative

This is known as a *ceiling/floor effect*. The higher one's expectations, the greater the likelihood of negative disconfirmation due to the increasing inability of performance to match extreme (i.e., ceiling) expectation levels. Similarly, the lower one's expectations, the greater the likelihood of positive disconfirmation, as performance is less likely to reach the "floor."

#### Relation C Is Positive

This possibility has not been entertained as yet. Here, high expectations encourage positive disconfirmation, and low expectations encourage negative disconfirmation. A likely explanation for this is the common halo effect, 32 whereby consumers bring overall positive or negative biases to the judgment task. Thus, high-expectation consumers will see only positive, better-than-expected outcomes, and low-expectation consumers will see only negative results.

#### Relation C Is Zero

Under this condition, the expectation level says little about the positivity or negativity of disconfirmation. High (or low) expectations are equally likely to precede negative as well as positive disconfirmation. This allows for performance to exceed even very high expectations (beyond my wildest dreams!) and to fall short of very low expectations (worse than I ever could have imagined!). Thus, the conditions are independent and will require separate strategies.

Expectation

A (Assimilation)

Satisfaction/
Dissatisfaction

B (Contrast)

SFIGURE 4-3. A Simplified Expectancy Disconfirmation Framework

As shown in the previously cited automobile study,  $^{33}$  the following correlations (using overall scales) emerged, corresponding to the relations in Fig. 4-3: correlation A=0.39, correlation B=0.61, and correlation C=0.01. The first two correlations were highly significant; the third was obviously not. This evidence suggested that two phenomena were generating the results in this study. First, there appeared to be no necessary relation between one's expectation level and the subjective disconfirmation as reported by individuals. Second, expectation and (positive) disconfirmation apparently operated in tandem to jointly determine satisfaction levels. This latter conclusion is readily apparent from a tabular presentation of cell means from the same findings which generated the correlations, as shown in Table 4-4.

Table 4-4.

A number of new insights emerge from the tabular presentation of the data. First, the independent operations of expectation and disconfirmation are clearly visible from the row and column marginals. (The *marginals* are the row and column averages, so called because they are reported in the table margins.) Ceteris paribus, an increase in expectations from low to high results in a 0.83 increase (4.80 - 3.97) in the satisfaction rating. More influential is the increase in ratings as one moves from negative disconfirmation to confirmation (a 0.89 increase) and from confirmation to positive disconfirmation (a 1.10 increase).

Second, the best and worst expectation and disconfirmation combinations for firms are now visible. If one can generalize from these data, it is clear that consumers will be most dissatisfied if they enter into a purchase with low expectations and receive a product that is *worse* than expected. Is this possible? A simple reflection on one's own experiences with, say, dental root-canal procedures, IRS audits, and low-budget movies should bring to mind the possibility outlined here. An explanation for the best combination rests on similar logic, to be discussed shortly.

In one of the few reported replications of this analysis, almost identical results appear in Iacobucci et al.<sup>34</sup> On seven-point scales of satisfaction with hotel visit scenarios, their marginals for high and low expectations are 5.29 versus 3.54, respectively, while the marginals for positive, zero, and negative disconfirmation are 6.31, 4.64, and 1.77, respectively. Both sets of figures contain significant differences across levels, and the cell means mapped the data in Table 4-4 very closely.

#### What Does This Mean for Strategy?

These data immediately raise the critical question of how firms can maximize satisfaction. The answer, evident from Table 4-4, is that management must instill high

TABLE 4-4. Tabular Results from Oliver (1977)\*

	Re	spondents Reportin	ıg:	
Respondent	Negative	Confirmation	Positive	Row
Expectation Level	Disconfirmation		Disconfirmation	Marginals
Low	2.97	3.88	5.06	3.97
High	3.87	5.06	5.93	
Column marginals	3.57	4.46	5.56	4.80 4.46

<sup>\*</sup>A 1-to-7 scale; cell means are not equal; total n = 243.

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(but not ideal) expectations and then provide a product or service that is able to exceed the high consumer expectations. This may sound paradoxical because if a firm creates high expectations, how can it provide a product or service that exceeds these lofty goals? The response is that this is a managerial issue, involving managerial strategy. Management must decide the appropriate level of (high) expectations that it will promise, keeping in mind that exceeding this level in the eyes of the consumer must still be possible.

This dictum illustrates the problem with a firm's promise of "ideal" performance. Ideal-level expectations simply cannot be exceeded. And what happens if high expectations cannot be exceeded? Examine Table 4-4. The best that this firm can expect to achieve is represented by the high-expectations zero-disconfirmation (confirmation) cell. According to the data reported here, these satisfaction ratings will be the same as those when the consumer held low expectations and found that they were exceeded.

#### The Role of Confirmation

What does confirmation of expectations do? Nothing. Nothing beyond the effect of the expectation level that already exists. If consumers expect a pleasant dining experience and receive exactly that, they will report that the experience was pleasant. Similarly, if a consumer expects to be dissatisfied with a company's response to a legitimate complaint because the company's policy is generally known as unresponsive, she or he will be dissatisfied when it is later found that the company ignored the complaint, just as expected. Unfortunately, some literatures proclaim that meeting expectations is the key to satisfaction. Even if one were to presume that these expectations were not negative, this is still a suboptimal proposition. At best, this strategy may only stave off dissatisfaction. The competitor that has positioned itself to exceed customers' expectations will dominate the "meet expectations" firm.

There is another aspect to confirmation requiring consideration. Chapter 3 discussed the notion of a zone of indifference. This zone, which is also called a latitude of acceptance in the assimilation-contrast literature, surrounds a range of performance which is acceptable to the consumer because performance in this range essentially fulfills the consumer's needs. An example used in Chap. 3 was a promised pizza delivery time of 30 minutes; most consumers would not be terribly upset if it arrived as late as 45 minutes or as early as 20 minutes. The general operation of indifference zones is shown in Fig. 4-4.

The figure assumes a preset expectation level, shown by the dashed horizontal line. Given this level, the horizontal axis shows performance ranging from below expectations through matching expectations to exceeding expectations. Likewise, the vertical axis shows disconfirmation ranging from negative disconfirmation through zero disconfirmation (confirmation) to positive disconfirmation. The straight line tilted at 45° shows how disconfirmation will increase from negative to positive as performance goes from low to high. The curve snaking around this straight line shows the distortion that would be created by an indifference zone. The zone of indifference, shown as the gray shaded area, defines the range of performance both below and above the expectation level that consumers would accept as

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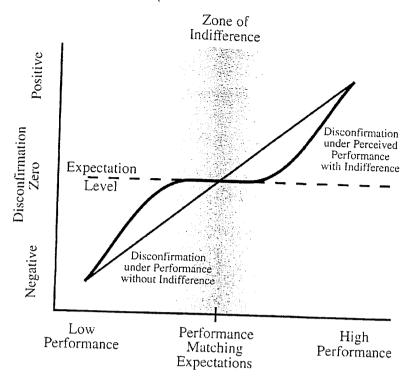


FIGURE 4-4. Operation of an Indifference Zone in Expectancy Disconfirmation

essentially meeting expectations. As a result, positive disconfirmation and negative disconfirmation first appear at greater performance discrepancies than would occur if no indifference zone were operating.

The implication of this phenomenon for the firm is that exceeding expectations may be more difficult to the extent that the acceptance region is large. If consumers are willing to give the firm the benefit of the doubt for small shortfalls in performance, they may also be equally insensitive to a range of performance exceeding expectations. In fact, if the distorted disconfirmation curve shown in Fig. 4-4 can be considered the general case, then both positive and negative disconfirmation will lag *straight-line* disconfirmation until the two become psychologically identical, located at the two ends of the performance range shown in the figure.

Note that the zone of indifference is *not* identical to the tolerance zone, <sup>35</sup> discussed in Chap. 3. The lower boundary of the tolerance zone reflects the greater range of performance the consumer will find as minimally fulfilling needs. Minimal need fulfillment, such as might occur when a traveler expecting a limousine at the airport finds that he or she must take a taxi, can be much below expectations and extremely frustrating.

Unfortunately, little research exists to guide researchers on identifying the existence and limits of indifference zones. An early paper on the topic was theoretical, and later empirical work has tested only the norms used by consumers within the tolerance zone (e.g., ideal, best brand, predicted). This area would appear to be a fruitful direction for researchers to take.

#### WHAT'S MORE POWERFUL, EXPECTATION OR DISCONFIRMATION?

The reader may have noticed that, in the previous example, the incremental return due to increasing the positivity of disconfirmation (i.e., moving from left to right in Table 4-4) appeared to generate greater increases in satisfaction than that of increasing the level of expectations from low to high. This could have been predicted from the correlations corresponding to the relations in Fig. 4-3, where the disconfirmation-satisfaction correlation was 1.5 times that of the expectation-satisfaction correlation. That is, satisfaction was found to respond more forcefully to increases in the positivity of disconfirmation than to increases in the level of expectation. Is this universally true?

A scorecard of data has not yet been compiled, but a sufficient number of studies have been performed for some initial and intuitive insights. (More will be said of this later.) For now, assume two opposite scenarios, one where the expectation effect is known to dominate disconfirmation and the other where disconfirmation is known to dominate expectation. Discussion begins with the first scenario.

#### When Expectations Dominate

For expectations to dominate a satisfaction decision, the processing of expectations must be more salient to the consumer than is the processing of performance or of comparing expectations to performance. It has been said that it is not necessary that the consumer have objective measurements of performance for a disconfirmation judgment to occur. If the dominant expectations scenario is to be useful, it must also be assumed that a subjective performance judgment that would give rise to a strong or salient disconfirmation perception is not or cannot be made. Three reasons may explain why consumers do not attend to performance and, hence, disconfirmation. First, they may be unable to judge performance; second, they may not do this as a practical matter; third, they may not wish to judge performance as an ego-defensive tactic.<sup>38</sup>

#### Measurement Difficulties

When are consumers unable to judge performance? Three answers are (1) whenever no objective performance can be observed, (2) whenever performance is an ambiguous concept,<sup>39</sup> or (3) whenever measurement is so technically involved that the consumer would not even be aware of the procedures. The first two cases could be represented by "health" foods and artwork, while the third could pertain to any of a number of high-technology items including computers, chemical applications such as water treatments and sanitizers, and common photographic processes. After all, does a leading bathroom disinfectant really kill germs dead?

#### Impracticality

The case of the consumer's disinterest in testing performance is also an intriguing phenomenon. Some products have performance dimensions which are measurable, but the actual measurement procedures may be too intrusive, cumbersome, or inconvenient. Take the example of a long-life lightbulb. If a manufacturer promises that a bulb will last for an average of 1500 hours and it burns out, how

many hours did it burn? Because consumers do not keep logs of the time durations of lighted lamps and because they do not put recording monitors on their lamps, it is unlikely that the actual bulb life is known. What is the only number of hours which will be recalled by the consumer?

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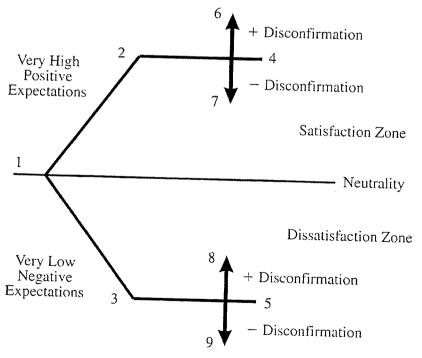
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#### Unwillingness

Finally, one can entertain the possibility that consumers are *unwilling* to measure performance because they fear that the result will be confusing or disturbing, will reflect poorly on their decision-making ability, or will contradict a previously drawn conclusion. This is referred to as a *confirmation bias*, 40 and it pervades many decisions, especially those of an ego-involving nature. One example might be found in security investing where a particular return is expected in a specific time frame. Many investors are known not to "test" interim performance for fear that their predictions will be proved wrong. 41 Thus, for this and the previous two reasons, expectations may quite routinely dominate the satisfaction decision.

Figure 4-5 illustrates graphically the operation of the expectancy disconfirmation model under strong expectation effects and, for the sake of discussion, weak disconfirmation effects. Note how this model assumes an additive interpretation, as shown in the results displayed in Table 4-4. Note, also, that location 1 represents hedonic neutrality, an emotionless consumer. At location 2, one consumer is given reason to hold high expectations, while a second consumer at location 3 is primed to hold low expectations. Now, if both consumers receive exactly what they expected, then the high-expectation consumer remains "satisfied" at location 4 and the low-expectation consumer remains "dissatisfied" at location 5.

FIGURE 4-5. Operation of Expectancy Disconfirmation under Strong Expectation and Weak Disconfirmation Effects



Locations 6 and 9 represent the two situations of dual parallel effects. Position 6 occurs when a consumer expecting high performance receives a positive disconfirmation—a product better than expected, the most satisfying combination. Position 9, similarly, is the worst possible case whereby low expectations are negatively disconfirmed. Compare this combination to the product rating in the lowexpectation negative-disconfirmation cell in Table 4-4. Firms should seek to avoid this possibility in all business matters.

In contrast to the complementary effects, positions 7 and 8 provide countervailing interpretations and paradoxical results. Consider position 7 first. This situation portrays a negative disconfirmation under high expectations, yet the consumer's final resting place is in the region of satisfaction. How can this be? The reason is that the high- (and strong) expectation effect overwhelmed the much weaker disconfirmation effect and maintained the satisfaction level, albeit at a lower level. This consumer is still satisfied, even given a product performing more poorly than expected, but is less satisfied than if expectations had been met (i.e., position 7 is lower than position 4). In fact, there is a descriptive name for this state of nature, one where poorer-than-expected performance remains satisfying, but less so than anticipated or desired. A commonly used term is disappointment. 42 Remember the last time a favorite performer appeared in a movie, concert, etc., and the performance was not up to standard? Or the last time a pet soiled the carpet? The reaction was probably disappointment, but overall (and lower) satisfaction is felt nonetheless.

Consider now the case where strong low expectations are coupled with a weak, but positive disconfirmation. This is one example of dissatisfaction in the case of a better-than-expected product, and it begs the question, Why isn't the consumer satisfied with a product that exceeded expectations? The answer, again, is that the low prior expectation was excessively dominant and prevented the positive disconfirmation from moving the consumer upward, crossing neutrality into the satisfaction region. This is the lament of the low-image producer trying to improve its product.

The U.S. automobile industry in the 1980s is probably an example of this latter situation. The Consumer Reports annual automobile issue had noted the improving quality of U.S. cars relative to those of foreign producers for some time before U.S. consumers began to trust the quality of American-made cars. Responses by individuals to a product that remains dissatisfying, but is somewhat better than expected, are interesting because of their ambivalence. Phrases like improving, gratifying that it wasn't as bad as I thought, and bad, but not terribly bad come to mind.

These two situations at positions 7 and 8 should dispel a misconception heard numerous times from business practitioners and academics alike. It is frequently claimed that "positive disconfirmation results in satisfaction" and "negative disconfirmation results in dissatisfaction." These statements are simply not true under the conditions underlying the responses in Fig. 4-5, and such blanket, oversimplified renditions of the expectancy disconfirmation model only serve to confuse. Situations where this interpretation is accurate, however, will be described shortly.

The reader may have noted that the locations of the resting places in Fig. 4-5 do not correspond to the order of the cell means in Table 4-4. The reason for this apparent anomaly is simple. The example assumed that the expectation effect was stronger than that of disconfirmation, while the results giving rise to the data in

Table 4-4 are from a data set where the reverse is true. This situation is now presented.

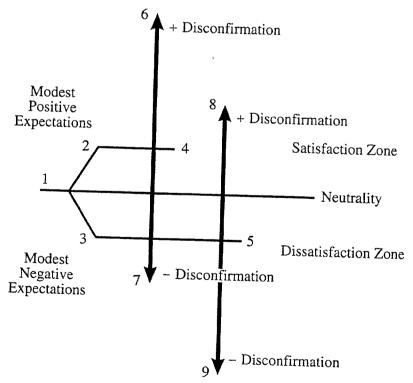
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#### When Disconfirmation Dominates

Figure 4-6 illustrates the opposite example—strong disconfirmation in the presence of weak expectations. Note that, as before, one neutral consumer at location 1 is given favorable, but weak expectations while another is given unfavorable weak expectations so that the first consumer is now at location 2 and the second at location 3. Note, also, that the disconfirmation effects, represented by the vertical lines, are stronger (longer). As before, when the two influences are in the same direction (favorable expectations, positive disconfirmation; unfavorable expectations, negative disconfirmation), the effects are cumulative, and the best and worst possible situations are again apparent at positions 6 and 9. Additionally, confirmation of either favorable or unfavorable expectations (locations 4 and 5) simply maintains the previous level of expected satisfaction.

The effect of countervailing influences is now very visible in this second example. Here, favorable expectations in the face of a negative disconfirmation do result in dissatisfaction (position 7), as the negative disconfirmation influence drags the consumer's judgment across neutrality into the dissatisfaction region. One might liken this to "shock" or to a betrayal, as if the consumer were "set up" with overhyped product claims. Similarly, a strong positive disconfirmation given unfavorable

FIGURE 4-6. Operation of Expectancy Disconfirmation under Weak Expectation and Strong Disconfirmation Effects



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expectations (position 8) is now sufficient to reverse the prior negative feelings, causing satisfaction. This situation illustrates what companies with negative images need to do to "jump-start" the consumer. Expressions of surprise, including amazement, would pertain here, as in "I simply didn't realize how good this product is!"

Note, now, that the resting places of the four expectation-disconfirmation combinations (represented by the locations of the arrowheads) do roughly correspond to the cell means in Table 4-4. Be aware, however, that the means will differ for every unique situation, and Table 4-4 and Fig. 4-6 are presented as illustrations of one product and one consumer setting. Studies of expectation and disconfirmation effects produce differing results, depending on numerous idiosyncratic variables, and researchers must calculate these effects on an individual product or service basis.

When can one expect to find that disconfirmation dominates the expectation (assimilation) effect? One answer from the literature pertains to the role of involvement. More involved consumers have been found to report higher levels of (positive) disconfirmation and of satisfaction.<sup>43</sup> And at least one study finds that involvement enhances the effect of *both* positive disconfirmation and negative disconfirmation, so that negative disconfirmation under high involvement has a more deleterious effect on satisfaction than it would if involvement were not operating.<sup>44</sup> Generally, any concept which affects the salience of performance to the consumer should increase the degree to which disconfirmation, more so than expectation, affects satisfaction.

A second explanation relates to the degree to which performance clearly and unambiguously refutes expectations. Individuals who recognize discrepancies from expectations, and are willing to accept them regardless of the potential damage to one's ego, should demonstrate disconfirmation influences. For example, a study of polygraph examiners showed that prior conceptions of guilt or innocence had no impact on a guilty/innocent judgment, if the indications clearly pointed to one of the two outcomes. Ambiguous readings, in contrast, caused expectations to dominate the polygrapher's judgment. Unfortunately, it was not apparent from the findings whether disconfirmation exaggerated the intensity of the guilt or innocence conclusion, as would be expected under contrast effects.

A third possibility results from an investigation of complainers and noncomplainers recalling their dissatisfaction with carpeting purchased at least 6 months previously. In this study, Dröge and Halstead found that while complainers' satisfaction responded to both expectations and disconfirmation, the satisfaction of noncomplainers was influenced only by disconfirmation. The authors argued that the lengthy time frame before recall caused the noncomplainers' recollection of their expectations to decay. Complainers, perhaps because they were more involved, held their expectations actively in memory. Thus, a declining memory for expectations may cause satisfaction to be dominated by disconfirmation only. Note from the previous discussion that it is not necessary to know precise expectation levels to form a judgment of better than/worse than expected.

Thus, faltering recollections of expectations, product or service involvement, and a willingness to accept unambiguous disconfirming evidence may enhance the disconfirmation effect in the prediction of satisfaction. Further work on the appearance of disconfirmation-dominated judgments is clearly needed so that these issues can be more fully resolved.

#### EVIDENCE FOR THE EXPECTANCY DISCONFIRMATION MODEL

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A number of reviews have documented the increasing acceptability of the expectancy disconfirmation model in describing postpurchase evaluation. Perhaps the most comprehensive is that by Yi, who states that "expectation (or some other comparison standard) and confirmation/disconfirmation have consistently been found to be key variables affecting evaluation of product performance."47 Similarly, Tse and colleagues conclude, "Studies focusing upon the antecedents of satisfaction have produced strong support for the expectancy disconfirmation paradigm across a wide variety of products,"48 and Erevelles and Leavitt state, "The paradigm that has dominated consumer satisfaction/dissatisfaction research since its emergence as a legitimate field of inquiry in the 1970s has been the expectancy disconfirmation paradigm."49 Although none of these reviews questions the ability of the expectancy disconfirmation model to predict satisfaction, each notes that various elements of the model are in need of testing and refinement.

For example, both the Erevelles and Leavitt and Yi reviews compare the expectancy disconfirmation model to others that also relate to consumer satisfaction (e.g., equity theory—see Chap. 7) and question which would yield superior results under different circumstances. Tse and colleagues point to the need to study the process of satisfaction throughout the consumption interval (i.e., purchase to disposal) and note that expectancy disconfirmation is but one of many stages. Last, Yi notes that expectancy disconfirmation does not speak to the direct effect of performance in that it treats performance only as an input to the disconfirmation variable. He further notes that the interplay of expectations, disconfirmation, and performance is complex and needs to be studied in the context of moderating conditions for each of these variables.

These are legitimate and important observations on the limitations of the expectancy disconfirmation model. Each is covered in separate parts of this book. The following chapters discuss other satisfaction models which will be shown to operate in parallel with expectancy disconfirmation, including need fulfillment, quality, equity, regret, and affect. An all-inclusive process model is reserved for one of the later sections of the book in Chap. 12. Finally, it must be admitted that there are some issues for which researchers have no answers; these answers await further research. The interplay of the antecedents of satisfaction is an example of such issues. One hopes that readers will assume responsibility for future research in the area. For now, a partial answer to one of Yi's concerns, that of the role of performance in the expectancy disconfirmation process, is discussed.

#### PERFORMANCE INFLUENCES IN THE EXPECTANCY DISCONFIRMATION MODEL

As noted, the role of performance in the disconfirmation model is compounded by the fact that it also plays a part in determination of the disconfirmation concept itself. The actual role of performance in this process was considered equivocal when an early study by Churchill and Surprenant50 concluded that performance and

disconfirmation operated in either/or fashion depending on the product context. They suggested that a consumer durable (a video disk player) showed performance-only effects while a nondurable (a potted plant) showed the more traditional expectancy disconfirmation influences.

Six studies now exist to show either direct performance effects in tandem with disconfirmation, indirect performance effects which are fully mediated through disconfirmation, or combined direct and indirect influences through disconfirmation. By using either performance ratings or quality ratings as a proxy for performance, direct effects operating side by side with disconfirmation have been found for the product and service categories of automobiles, course instruction, and medical care. In a study of satisfaction with negotiated outcomes in an industrial selling situation, the performance effect was found to be fully mediated (absorbed within) the disconfirmation response. Last, others have noted that performance may have dual influences. Specifically, performance may operate through disconfirmation, as in the industrial selling setting, and have an independent direct effect on satisfaction. Two studies, one on a large sample of telephone users and the other on a countrywide sample of citizens across a large number of product categories, showed these combined effects. The sixth study, performed at the level of the individual consumer, showed consumer-specific effects and will be discussed shortly.

At this point, it is possible to augment the elementary expectancy disconfirmation model in Fig. 4-3 with the disconfirmation sequence on page 108 and with what is known about the tandem operation of performance with disconfirmation. Doing so results in the current version of the expectancy disconfirmation model shown in Fig. 4-7.

As portrayed in Fig. 4-7, expectations and performance—the two leftmost variables—are referred to as *exogenous* because they have no antecedents in the conceptual framework outlined here. These are linked with a curved, double-headed arrow. This convention implies that the actual correlation between these two variables

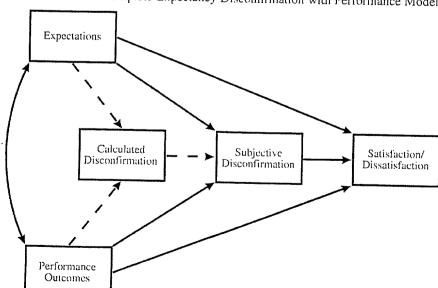


FIGURE 4-7. The Complete Expectancy Disconfirmation with Performance Model

cannot be specified beyond the assumption that a relationship exists. This is so because the expectation-performance relation is idiosyncratic to the product or service being investigated. It could be positive, as it was in the negotiation study<sup>55</sup> whereby negotiators had some volitional control over their performance; it could be zero when performance is completely outside the control of the consumer, as it might be for games of chance; and it could be negative if, e.g., extremely high expectations cause the consumer to view highly likely moderate performance levels as poor.

The other relations are as described previously. Expectations and performance combine to form the objective disconfirmation level; objective disconfirmation provides the basis for a subjective interpretation of this expectation-performance difference; and subjective disconfirmation is directly antecedent to satisfaction. As positioned above this chain of events, the direct link between expectations and satisfaction represents the assimilation effect, as discussed here and at the end of Chap. 3. Finally, the lower performance-satisfaction link represents the direct effect of performance not mediated by disconfirmation. This graphic represents the most current version of disconfirmation theory and has been called the expectancy disconfirmation with performance model.

#### MODEL VARIATIONS

Despite the fact that Fig. 4-7 shows a fairly complete representation of the operation of all concepts in the expectancy disconfirmation model, frequently not all the variables operate as shown or at all. There are a number of reasons for this; the possibility that certain concepts, such as performance or expectations, are not processed has already been discussed. This section entertains the possibility that particular groups of individuals respond to the variables differently. Another possibility is that certain attribute sets have different response characteristics.

#### Sample versus Individual Influences

Up to now, the operation of the expectancy disconfirmation model has been discussed in aggregate form. That is, it has been assumed that the variable relations represent degrees of influence shared by all consumers. For example, if the disconfirmation influence is stronger than the expectation influence as determined by regression coefficients, then it can be assumed that this is so for all consumers in the sample. This conclusion is unlikely, although current convention embraces this interpretation. It would be very useful for segmentation purposes if one could separate those who rely mostly on disconfirmation from those who rely mostly on expectation and do further analysis as to their background variables, media habits, etc.

One study exists to answer the first part of this question, concerning the proportion of consumers who rely more so on expectation, on disconfirmation, or on performance than on the other variables. This study, by Oliver and DeSarbo,56 manipulated expectation, disconfirmation, performance, and two other satisfaction influences in an experimental investigation of stock (security) trade outcomes. The particular design employed ensured that the three primary influences (expectation, disconfirmation, and performance) were independent of one another, so that each

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had an equal and unfettered chance to influence satisfaction. Moreover, this procedure also allowed determination of the degree of influence on an individual basis.

The results showed that, on an aggregate basis, the disconfirmation effect dominated the performance effect in the prediction of satisfaction, which, in turn, was stronger than the effect of expectation. All effects were significant. On an individual basis, however, only 15 of 40 respondents used all three variables. Of the remainder, 9 used performance and disconfirmation without expectation, 9 used disconfirmation only, 5 used expectation and disconfirmation without performance, 1 used performance only, and the remaining 1 used another of the study variables (equity).

The conclusion one would draw is that, ultimately, the tendency (or choice) to use one or the other of the model variables exists at the individual level which, in the aggregate, results in sample-specific average coefficients. Unfortunately, moderating conditions such as the meaning of the security purchase to the respondent or the situation were not investigated. Nor were the authors able to find background variables which correlated with these response tendencies; others, however, most surely will, as this research direction continues.

#### Benefits and Problems as Separate Disconfirmation Influences

Earlier, it was suggested that the disconfirmation concept is so versatile that it can be applied to the entire consumption experience as well as groups of attributes or the individual attributes themselves. Here, discussion centers on the different influences of the benefits received by the consumer versus the problems encountered. Why would one want to make this distinction?

The answer is inherent in the very different influences of positive versus negative reinforcement, discussed more fully in Chap. 5, and of punishment. For now, the following examples will illustrate the likely consumer responses to the positive and negative disconfirmation of attribute benefit sets and problem sets. Given again, an air travel example, assume that the main benefits sought are a comfortable trip from one city to another with courteous treatment from the attendants. Potential problems include lost luggage and bad food. Assume, also, that the air traveler is realistic; i.e., that she or he does not expect a perfect flight, and some number of "mishaps" is inevitable. Table 4-5 ranks the various disconfirmation scenarios in order of their potential to please and frustrate.

As can be seen in Table 4-5, benefits disconfirmation operates on positive experiences anticipated by the consumer, causing them to be more or less joyful.<sup>57</sup> In contrast, problems disconfirmation operates on the negatives, causing them to be more or less frustrating. Thus, the effect of a worse-than-expected experience is

TABLE 4-5. Separate Disconfirmation Effects of Benefits and Problems

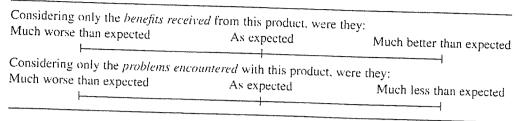
Benefit/Problem	Specific Example	Disconfirmation	Result
Benefits	Delightful attendants Full load, cramped cabin	Better than expected Worse than expected	More joy Less joy
Problems	Tasty, pleasant food Stolen luggage	Better than expected Worse than expected	Less frustration More frustration

attribute-specific. When this manifests itself for benefit attributes, the experience is less joyful than expected. When this occurs for a problem attribute, the experience is more frustrating than anticipated.

Measurement of separate problems and benefits disconfirmation is straightforward as follows:<sup>58</sup>

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The author is aware of only one study which tested the separate components of this breakdown separately. Most studies combine these scales with one of overall disconfirmation to form a three-item disconfirmation scale. In the single study in which benefits and problems were treated separately, Richins and Bloch<sup>59</sup> found that the satisfaction of high-involvement automobile consumers, those with greater-than-average interest in their cars, was affected by benefits disconfirmation early in ownership and by problems disconfirmation later. The satisfaction of low-involvement consumers was equally affected in both time periods. Thus, the more involved consumer is likely to derive joy from early ownership experiences that are better than expected and frustration from unanticipated later problems.

Two additional studies focused solely on the different effects of positive versus negative disconfirmation. This technique essentially collapses the four-row structure in Table 4-5 into two rows, so that the first and third rows are joined, as are the second and fourth. Both studies found similar results. When it is expressed in terms of the magnitude of influence, negative disconfirmation played a greater role in decreasing satisfaction than positive disconfirmation did in increasing it. Stated differently, a unit of negative disconfirmation is more damaging to satisfaction than an identical unit of positive disconfirmation in enhancing satisfaction. This, again, displays the disproportionate influence of negative information, a point noted in the previous chapter.

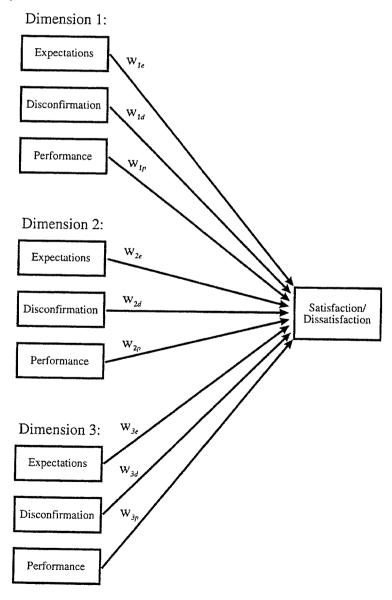
#### Dimension- or Attribute-Specific Disconfirmation

In a 1980 paper, this author argued that "disconfirmation ultimately takes place at the individual attribute level." Could it be that the expectancy disconfirmation model also operates at the individual attribute or dimension level in the same way as it operates differently at the individual level? One set of findings suggests that this is so, at least for the operation of disconfirmation and performance (expectations were not measured). In this study, Halstead and colleagues tested two attribute *dimensions* in the prediction of satisfaction with higher education. The two dimensions were intellectual environment and employment preparation. The results showed that, for the job dimension, performance was fully mediated by disconfirmation and that only job preparation disconfirmation affected satisfaction directly. However, for the intellectual dimension, only performance affected satisfaction. Performance was related to disconfirmation, but disconfirmation did not directly affect satisfaction.

Figure 4-8 graphically models this dimension-specific possibility for three attribute dimensions and for all three predictors of satisfaction discussed in the expectancy disconfirmation model—expectation, disconfirmation, and performance. This is the more general case. Note that each variable is portrayed as a simple, uncorrelated predictor, for simplicity. Additionally, each is shown with a corresponding satisfaction weight  $w_{ij}$ , where subscript i denotes the dimension and subscript j denotes the expectation, disconfirmation, or performance predictor.

This model could be tested in two stages. First, the three variables comprising each dimension (or attribute), such as the expectation score, disconfirmation score, and performance score from dimension 1, are entered as predictors of satisfaction in a regression analysis. This will determine on a dimension-by-dimension basis

FIGURE 4-8. Dimension or Attribute-Specific Operation of the Expectancy Disconfirmation Model



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- January Hoder Outcomes		
Significant Coefficients or Findings	Model Variation	
Expectation only	Expectation (assimilation) model	
Performance only	Raw performance model	
Disconfirmation only	Disconfirmation (contrast) model of fully mediated expectation and performance effects	
Expectation and performance	Noncomparative expectation and performance model	
Expectation and disconfirmation	Expectancy disconfirmation model with fully mediated performance (see Fig. 4-3)	
Performance and disconfirmation	Performance and disconfirmation model with fully mediated expectations	
Expectation, disconfirmation, and performance	Full expectancy disconfirmation with performance model (see Fig. 4-7)	

which variation of the expectancy model operates for each dimension. The possibilities are shown in Table 4-6.

Table 4-6 shows the complete set of outcomes for each dimension. These include, with notes to instances in the literature where each has been found, <sup>64</sup> the expectation-only, <sup>65</sup> performance-only, <sup>66</sup> and disconfirmation-only <sup>67</sup> models; the two-component expectation-performance, <sup>68</sup> expectation-disconfirmation, <sup>69</sup> and performance-disconfirmation <sup>70</sup> models; and the full expectancy disconfirmation with performance model. <sup>71</sup> Note that many of these have been discussed in the text at various locations, including the early assimilation (expectation-only) and contrast (disconfirmation-only) variations. It is this author's experience that any of these combinations are possible and that none can be ruled out (or assumed) a priori. As shown in the Oliver and DeSarbo study, discussed earlier, <sup>72</sup> individual experimental subjects exhibited disconfirmation only, disconfirmation with expectation, disconfirmation with performance, and full model effects.

Once the dimension-specific results have been obtained, the researcher is ready for the second stage of the analysis. At this point, *all* the significant variables, and *only* the significant variables from each of the dimensions, are included as predictors in a final regression analysis with satisfaction as the dependent variable. This stage is necessary to ferret out lingering multicollinear effects across dimensions. The remaining significant predictors will be those most strongly related to satisfaction. Some may be expectations, others may be disconfirmations, and still others may be performance variables. There *will* be a set of significant predictors, however, given an adequate sample size. Excepting unpublished and proprietary research, this analysis has not appeared in the literature to date, and examples beyond that of Halstead have not been forthcoming.

#### CONCLUSION

The origins, development, and present status of the expectancy disconfirmation model have been discussed. Consisting of expectations, performance, and the out-

come of their comparison, namely, disconfirmation, the model has been shown to adequately account for one major mechanism by which consumers form satisfaction judgments. Although some consumers are known to use all elements of the model, others may selectively base their satisfaction decisions on one or more of its components.

Generally, these latter model variations will explore the expectancy disconfirmation with performance model fully. Research efforts could conceivably end here if there were no known remaining influences on satisfaction that were not accounted for in the disconfirmation model. Unfortunately, that is not likely to be the case. The next section begins discussion of other comparative standards that have been found to operate in parallel with disconfirmation and in addition to performance itself. These include needs, quality, inequity, and regret. Generally some of or all these will not be accounted for in a list of performance dimensions or in the expectancy disconfirmation analysis, and it is for this purpose that discussion continues in Part 3.

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- 14. See, e.g., Brett Hart and Virginia A. Diehl, "Position Reversal: Isolating the Key Factor in Assimilation and Contrast," Journal of Psychology, 128:71-87 (January 1994).
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- 22. Subjects predicted whether they would win or lose a card hand. Using a marked deck, the researchers caused confirmations and disconfirmations in a prespecified order. The outcome

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- versus the prediction was thought to be sufficiently "obvious" that subjects could not misinterpret the state of disconfirmation.
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- 26. Richard L. Oliver, "Conceptualization and Measurement of Disconfirmation Perceptions in the Prediction of Consumer Satisfaction," in H. Keith Hunt and Ralph L. Day (eds.). Refining Concepts and Measures of Consumer Satisfaction and Complaining Behavior, Foundation for the School of Business, Indiana University, Bloomington, 1980, pp. 2-6.
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- 31. See Oliver 1977 in note 12.
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- 33. See note 12.
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Disconfirmation
Model of Satisfaction

PART TWO Basic Satisfaction Mechanisms

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- 51. Richard L. Oliver, "Cognitive, Affective, and Attribute Bases of the Satisfaction Response," Journal of Consumer Research, 20:418-430 (December 1993); and Richard L. Oliver, "Conceptual Issues in the Structural Analysis of Consumption Emotion, Satisfaction, and Quality: Evidence in a Service Setting," in Chris T. Allen and Deborah Roedder John (eds.), Advances in Consumer Research, vol. 21, Association for Consumer Research, Provo, UT, 1994, pp. 16-22.
- 52. See Oliver et al. 1994 in note 29.
- 53. Ruth N. Bolton and James H. Drew, "A Multistage Model of Customers' Assessments of Service Quality and Value," Journal of Consumer Research, 17:375-384 (March 1991).
- 54. Eugene W. Anderson and Mary W. Sullivan, "The Antecedents and Consequences of Customer Satisfaction for Firms," Marketing Science, 12:125-143 (Spring 1993).
- 55. See note 29.
- 56. Richard L. Oliver and Wayne S. DeSarbo, "Response Determinants in Satisfaction Judgments," Journal of Consumer Research, 14:495-507 (March 1988).
- 57. Additionally, the consumer may express anger at not getting an expected benefit or getting less than anticipated. This auxiliary emotion also plays into the satisfaction response. See
- 58. The origins of these scales are discussed in note 24.
- 59. See note 43.
- 60. See note 54; and Wayne S. DeSarbo, Lenard Huff, Marcelo M. Rolandelli, and Jungwhan Choi, "On the Measurement of Perceived Service Quality: A Conjoint Analysis Approach," in Roland T. Rust and Richard L. Oliver (eds.), Service Quality: New Directions in Theory and Practice, Sage, Thousand Oaks, CA, 1994, pp. 201-222.
- 61. See also Raanan Lipshitz and Dalya Barak, "Hindsight Wisdom: Outcome Knowledge and the Evaluation of Decisions," Acta Psychologica, 88:105-125 (March 1995).
- 62. See Oliver 1980 in note 24 (at p. 467).
- 63. Diane Halstead, David Hartman, and Sandra L. Schmidt, "Multisource Effects on the Satisfaction Formation Process." Journal of the Academy of Marketing Science, 22:114-129 (Spring 1994).
- 64. The following list references only those studies, most of which are performed at the aggregate level, where a reasonable test of joint influences was conducted, unless otherwise noted.

There are many reports of simple correlations between the model variables and satisfaction. These, however, cannot address separate effects as the satisfaction predictors, themselves, may be correlated. Generally, regression and/or related causal techniques are required so that the complementarity of the predictors can be assessed.

- 65. This finding is common among the early assimilation-only studies due to the fact that they relied solely on expectation manipulations. See the discussion of assimilation at the end of Chap. 3 and the references in note 18.
- 66. Likewise, this finding is ubiquitous, particularly in the trade press, due to the fact that only performance is measured in traditional analyses. Examples of performance dominance in the better expectancy disconfirmation studies (using subjective disconfirmation) include Churchill and Surprenant for durable products in note 50 and Halstead and colleagues for collegiate intellectual environments in note 63.
- 67. See Oliver and DeSarbo in note 56; Oliver et al. 1994 in note 29; and Cadotte et al. in note
- 68. See Churchill and Surprenant for potted plants in note 50.
- 69. See Oliver 1977 in note 12; Oliver 1980 in note 24; Oliver and DeSarbo in note 56; Swan and Trawick in note 29; William O. Bearden and Jesse E. Teel, "Selected Determinants of Consumer Satisfaction and Complaint Reports," Journal of Marketing Research, 20:21-28 (February 1983); Robert A. Westbrook, "Product/Consumption-Based Affective Responses and Postpurchase Processes," Journal of Marketing Research, 24:258-270 (August 1987); and Robert A. Westbrook and Michael D. Reilly, "Value-Percept Disparity: An Alternative to the Disconfirmation of Expectations Theory of Consumer Satisfaction," in Richard P. Bagozzi and Alice M. Tybout (eds.), Advances in Consumer Research, Association for Consumer Research, Ann Arbor, MI, 1983. pp. 256-261.
- 70. See the Oliver references in note 51; Oliver and DeSarbo in note 56; and Peter C. Wilton and David K. Tse, "A Model of Consumer Response to Communication and Product Experiences," in Larry Percy and Arch G. Woodside (eds.), Advertising and Consumer Psychology, Lexington Books, Lexington, MA, 1983, pp. 315-332.
- 71. See Oliver and DeSarbo in note 56.
- 72. See note 56.

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# Alternative and Supplementary Comparative Operators

In Part 2, the operation of comparison mechanisms was discussed, primarily with reference to the process of expectancy disconfirmation. It was acknowledged, however, that referents other than expectations are known to affect satisfaction decisions and are therefore likely to play a role in the consumer's satisfaction response. Part 3 of the book focuses on four of these referents, four that are steeped in the history of satisfaction within the various disciplines that study it.

The first chapter in this section (Chap. 5) discusses need fulfillment as developed primarily in the fields of motivation and, later, job satisfaction. Needs are central to all aspects of life and play an essential role in product selection and assessment. Writings on techniques of satisfying consumers frequently begin with the ever-popular need hierarchy framework which describes how individuals first fulfill basic needs and then go on to pursue higherorder goals. To bridge the gap to the consumer domain, these needs and goals are typically linked to the delivery of product or service dimensions.

If not specifically addressed, the need-fulfilling function of product performance is often treated as if

it were intuitively obvious. One might ask, then, why so little *empirical* work attests to the origin of needs and how they operate in the customer satisfaction response. One possible answer to this apparent lack of attention is that products are designed to fulfill needs, so that product feature performance is identical with need provision. As argued here, this assumption is in "need" of further exploration.

Study of the need literature reveals that little is understood about basic (or not-so-basic) needs and that any presumptions about this concept are premature. Other observations from the literature suggest that there is lack of agreement not only on what needs are but also on their universality and how they interplay. Do individuals always move from the satisfaction of one need to the pursuit of satisfaction of another in an orderly fashion, as prescribed by need hierarchy theory? The literature is equivocal about the legitimacy of this theory, and Chap. 5 provides an overview and summary of what is known.

In Chap. 6, the concept of quality is discussed in light of its role in consumer satisfaction. Here, three issues are addressed. First, is quality synonymous

with satisfaction? Second, if not, which comes first, satisfaction or quality? Third, is quality as important a concept as satisfaction, or more important or less important? These issues are aired in order to respond to the current, extremely popular emphasis on total quality in manufacturing and service delivery. Is all this emphasis justified? Are firms focusing on the wrong concept? A specific position will be taken in Chap. 6, but only after the concept of quality is developed.

Chapter 7 discusses consumer equity. The concept of equity was first developed in the job satisfaction and legal literatures, where fairness (or justice) matters were self-evident. Matters of inequity in the workplace were thought to result in decreased productivity while those in the courts had obvious implications for societal harmony in general. But do consumers consider equity (or inequity) in consumption? The matter comes up frequently in issues of pricing, as in being charged a "fair price." However, this topic does not represent the bulk of the literature on consumer equity. Rather, equity is explored in the context of fair dealings; i.e., are the

consumer's efforts and outlays fairly reimbursed in terms of the product's utility and the dealer's efforts? Attention also focuses on the *process* of delivering the product, sometimes referred to as *procedural justice*, and comparisons to what other consumers have received in similar purchases.

Finally, in Chap. 8, buyer's remorse is discussed. More commonly known in the literature as regret, this concept involves a comparison to "what might have been." Here, the consumer is believed to make a comparison not to expectations or other comparison standards, but to a real or imagined set of outcomes that could have occurred if another alternative had been selected, or even to the possibility that no purchase had been made at all. There is a lack of consumer research on this topic; more is available elsewhere. Nonetheless, its importance in the satisfaction response is known from anecdotal accounts. Consumers are frequently observed to explain how they feel about what they have done (or have not done) with the comment, "If only I had. . . . "

## TABS H-L REDACTED IN THEIR ENTIRETY

## TAB M

#### Westlaw.

126 Fed.Appx. 32

126 Fed.Appx. 32, 2005 WL 701313 (C.A.2 (N.Y.)), 2005-1 Trade Cases P 74,765

(Cite as: 126 Fed.Appx. 32)

#### Н

Playtex Products, Inc. v. Procter & Gamble Co. C.A.2 (N.Y.),2005.

This case was not selected for publication in the Federal Reporter.RULINGS BY SUMMARY ORDER DO NOT HAVE PRECEDENTIAL EFFECT. CITA-TION TO SUMMARY ORDERS FILED AFTER JANUARY 1, 2007, IS PERMITTED AND IS GOV-ERNED BY THIS COURT'S LOCAL RULE 0.23 AND FEDERAL RULE OF APPELLATE PRO-CEDURE 32.1. IN A BRIEF OR OTHER PAPER IN WHICH A LITIGANT CITES A SUMMARY OR-DER, IN EACH PARAGRAPH IN WHICH A CITATION APPEARS, AT LEAST ONE CITA-TION MUST EITHER BE TO THE FEDERAL AP-PENDIX OR BE ACCOMPANIED BY THE NOTATION: "(SUMMARY ORDER)", UNLESS THE SUMMARY ORDER IS AVAILABLE IN AN ELECTRONIC DATABASE WHICH IS PUB-LICLY ACCESSIBLE WITHOUT PAYMENT OF FEE (SUCH AS THE DATABASE AVAILABLE AT HTTP://WWW.CA2.USCOURTS.GOV), THE PARTY CITING THE SUMMARY ORDER MUST FILE AND SERVE A COPY OF THAT SUM-MARY ORDER TOGETHER WITH THE PAPER IN WHICH THE SUMMARY ORDER IS CITED. IF NO COPY IS SERVED BY REASON OF THE AVAILABILITY OF THE ORDER ON SUCH A DATABASE, THE CITATION MUST INCLUDE REFERENCE TO THAT DATABASE AND THE DOCKET NUMBER OF THE CASE IN WHICH THE ORDER WAS ENTERED. Please use FIND to look at the applicable circuit court rule before citing this opinion. Second Circuit Rules § 0.23. (FIND CTA2 s 0.23.)

United States Court of Appeals,Second Circuit. PLAYTEX PRODUCTS, INC., a Delaware Corporation, Plaintiff-Counter-Defendant-Appellee,

PROCTER & GAMBLE COMPANY, an Ohio Corporation, Defendant-Counter-Claimant-Appellant.

No. 03-7651-CV.

March 28, 2005.

Background: Tampon manufacturer sued competitor

for false advertising and unfair competition. The United States District court for the Southern District of New York, William H. Pauley. III, J., denied competitor's post-verdict motion for judgment as matter of law. 2004 WL 1658377.and denied competitor's motion in limine to preclude expert testimony on damages, 2003 WL 21242769. Competitor appealed.

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Holdings: The Court of Appeals held that:

(1) evidence supported finding of false advertising;

(2) evidence supported finding of lost profits; and

(3) admission of manufacturer's expert testimony on issue of damages was not abuse of discretion.

Affirmed.

West Headnotes

[1] Antitrust and Trade Regulation 29T \$\infty\$83

29T Antitrust and Trade Regulation
 29TII Unfair Competition
 29TII(B) Actions and Proceedings
 29Tk79 Evidence
 29Tk83 k. Weight and Sufficiency. Most

Cited Cases

(Formerly 382k864 Trade Regulation)

#### Antitrust and Trade Regulation 29T 584

29T Antitrust and Trade Regulation
 29TII Unfair Competition
 29TII(B) Actions and Proceedings
 29Tk79 Evidence

29Tk84 k. Consumer Data and Market

Research; Tests and Surveys. Most Cited Cases

(Formerly 382k864 Trade Regulation)

Evidence supported finding that tampon manufacturer had falsely advertised its product's superior leak protection relative to that of competitor's product; laboratory and consumer test results, as well as testimony regarding structure of manufacturer's product, all pointed toward its relative nonsuperiority. Lanham Trade-Mark Act, § 43(a), 15 U.S.C.A. § 1125(a).

[2] Antitrust and Trade Regulation 29T \$\infty\$83

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29T Antitrust and Trade Regulation
 29TII Unfair Competition
 29TII(B) Actions and Proceedings
 29Tk79 Evidence

29Tk83 k. Weight and Sufficiency. Most

#### Cited Cases

(Formerly 382k864 Trade Regulation)

Circumstantial evidence supported finding that competitor's false advertising had caused tampon manufacturer to lose profits; manufacturer pointed to its market share before and after advertising campaign, nature of tampon market, strong brand loyalty among its customers, and stated goals of competitor's campaign. Lanham Trade-Mark Act, § 43(a), 15 U.S.C.A. § 1125(a).

#### [3] Evidence 157 \$\infty\$555.9

157 Evidence

157XII Opinion Evidence
157XII(D) Examination of Experts
157k555 Basis of Opinion
157k555.9 k. Damages. Most Cited

#### Cases

(Formerly 382k864 Trade Regulation)

Admission of tampon manufacturer's expert testimony on issue of damages, in false advertising suit against competitor, was not abuse of discretion; expert's method of discerning "residual impact" of competitor's advertising when parties' two products were in oligopolistic competition sufficed as reliable proxy for jury to evaluate in order to calculate lost profit damages. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

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Present: <u>SOTOMAYOR</u>, <u>RAGGI</u>, and <u>HALL</u>, Circuit Judges.

#### SUMMARY ORDER

\*\*1 UPON DUE CONSIDERATION, IT IS

HEREBY ORDERED, ADJUDGED AND DE-CREED that the judgment of the district court is AF-FIRMED.

Defendant-counter-claimant-appellant Procter Gamble Co. ("P&G") appeals from (i) the judgment and order of permanent injunction of the district court of the Southern District of New York (Pauley, J.), entered on May 29, 2003, following a nine-day jury trial, (ii) the order entered on July 26, 2004 denying P&G's motion for judgment as a matter of law pursuant to Fed.R.Civ.P. 50(b), Playtex Products, Inc. v. Procter & Gamble, Co., No. 02 Civ. 8046, 2004 WL 1658377 (S.D.N.Y. July 26, 2004), and (iii) the order entered on May 28, 2003, denying in relevant part P&G's motion in limine to preclude expert testimony damages offered by counter-defendant-appellee Playtex Products, Inc. ("Playtex"), Playtex Products, Inc. v. Procter & Gamble, Co., No. 02 Civ. 8046, 2003 WL 21242769 (S.D.N.Y. May 28, 2003). We assume the parties' familiarity \*34 with the facts and procedural background of this action.

We review *de novo* a denial of a Rule 50(b) motion, Yurman Design, Inc. v. PAJ, Inc., 262 F.3d 101, 108 (2d Cir.2001), applying the "same standard as the district court itself was required to apply," Diesel v. Town of Lewisboro, 232 F.3d 92, 103 (2d Cir.2000). We may only grant the motion where the record demonstrates "such a complete absence of evidence supporting the verdict that the jury's findings could only have been the result of sheer surmise and conjecture, or such an overwhelming amount of evidence in favor of the movant that reasonable and fair minded men could not arrive at a verdict" against the moving party. Id. (internal quotation marks omitted).

[1] We need not reach the question of whether the district court erred in finding that P&G waived its right to raise the issue of unpowered product testing in its Fed.R.Civ.P. 50(b) motion to set aside the jury findings by purportedly failing to raise the issue in its prior Fed.R.Civ.P. 50(a) motion. Similarly, we need not decide whether an unpowered product test alone would suffice to meet a plaintiff's burden in a claim that a competitor falsely advertised the superiority of its product. In light of the plaintiff's evidence as a

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whole, we are satisfied that Playtex adduced sufficient probative evidence to support the jury's verdict that P&G falsely advertised superior leakage protection. See This is Me. Inc. v. Taylor. 157 F.3d 139. 142 (2d Cir.1998) ("Weakness of the evidence does not justify judgment as a matter of law; as in the case of a grant of summary judgment, the evidence must be such that a reasonable juror would have been compelled to accept the view of the moving party." (internal citations and quotation marks omitted)).

\*\*2 At the very minimum, the challenged AUT tests and accompanying testimony in combination were probative of the leakage protection claim. Cf. Castrol, Inc. v. Ouaker State Corp., 977 F.2d 57, 64 (2d Cir.1992) (holding standard for challenging reliability of defendant's tests purportedly supporting advertised claims of test-proven superiority "merely establishes plaintiff's burden of proof with respect to defendant's tests. It in no way limits the evidence which plaintiff may use in meeting this burden. Such evidence is governed by the usual standards of admissibility"). In addition, Playtex also presented evidence of laboratory testing using the syngina, an instrument "designed to be an in-body simulation." J.A. at 625-26; see generally J.A. at 577-88, 622-25. The tests demonstrated how (1) the Pearl leaked significantly faster than the Gentle Glide, J.A. at 586-87, and (2) the Pearl's absorbent braid became "full of syngina fluid" before the primary absorbent reached saturation. J.A. at 586. While this test was also unpowered, it corroborated the results of the AUT tests because a rational juror could have inferred that, in light of the inferior performance in laboratory conditions simulating human use, the Pearl tampons were unlikely to perform in a superior manner in less controlled conditions. Supporting this inference was testimony on the structure of the Pearl's absorbent braid in relation to the tampon's overall absorbency. and on how the braid undermined the main pledget's absorbency. J.A. at [587] 573-74. The powered HPT tests before the jury, unchallenged on this appeal, further corroborate an inference of the Pearl's nonsuperiority, as the HPT tests demonstrated that consumers perceived no statistically significant differences between the two tampons with respect to leakage protection. J.A. at 470, 472, 749; see also J.A. at 642.

P&G vigorously and ably cross-examined each of Playtex's witnesses on the probative weight of the \*35 leakage protection evidence. The jury was instructed to evaluate the product testing in light of "the real world" and to "give the product testing evidence such weight, if any ... it deserves in light of all the evidence" and that the jury could "reject the evidence, in whole or in part, if [the jury did] not believe that the tests [were] reliable." J.A. at 1611-13. The jury charge is not challenged in this appeal. In sum, P&G has not met the "high threshold for disturbing a jury verdict." <u>Toporoff Eng'rs, P.C. v. Fireman's Fund Ins. Co.</u>. 371 F.3d 105, 108 (2d Cir,2004).

[2] Playtex also adduced sufficient evidence to support the jury's conclusion that P&G's false advertising caused it to lose profits. Playtex pointed to its market share before and after the advertising campaign, the nature of the tampon market, strong brand loyalty among its customers, and the stated goals of P&G's campaign. This evidence may be circumstantial, but "[c]ircumstantial evidence is of no less value than direct evidence," 4 Leonard B. Sand. et al., Modern Federal Jury Instructions, Instruction (rev.Oct.1999), and it can be sufficient to prove causation in a false advertising case just as it can be to prove other propositions. See EFCO Corp. v. Symons Corp., 219 F.3d 734, 740 (8th Cir.2000); BASF Corp. v. Old World Trading Co., 41 F.3d 1081, 1093 & n. 11 (7th Cir.1994).

\*\*3 [3] We review a district court's admission of an expert's testimony for abuse of discretion, Amorgianos v. Nat'l R.R. Passenger Corp., 303 F.3d 256. 264-65 (2d Cir.2002), and will not overturn a decision to admit expert testimony unless it is "manifestly erroneous." Id. at 265 (internal citations, quotation marks, and emphasis omitted). Under Fed.R.Evid. 702, expert testimony must be the "product of reliable principles and methods." "Significantly, the abuse of discretion standard applies as much to the trial court's decisions about how to determine reliability as to its ultimate conclusion." Id. (internal citation and quotation marks omitted). The district court has broad discretion in determining what method for determining reliability is appropriate for evaluating reliability under the circumstances of each case. Id. Given the unique characteristics of this

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product market, as well as the other evidence of causation before the jury, the district court's decision to permit Dr. Lynde's testimony on damages was not manifestly erroneous.

Dr. Lynde's methodology did not purport to attribute the whole of Playtex's profit losses to false advertising, but denominated a substantial fraction of that loss to the entry of a viable competitor into the marketplace. J.A. at 899. In the absence of sufficient data to conduct a regression analysis, Dr. Lynde's method of discerning the "residual impact" of P&G's advertising when the two products were in oligopolistic competition, see J.A. at 878-99, 926, 940, sufficed as a reliable proxy for the jury to evaluate in order to calculate lost profit damages. Cf. Burndy Corp. v. Teledyne Indus., Inc., 748 F.2d 767, 771 (2d Cir.1984) (holding district court as factfinder could "engage in some degree of speculation in computing the amount of [Lanham Act, Sec. 43(a)] damages ... causation must first be established" (internal citations omitted)); see Campbell v. Metro. Prop. & Cas. Ins. Co., 239 F.3d 179, 186 (2d Cir.2001) (noting that the weight of admissible expert evidence "is a matter to be argued to the trier of fact, not a basis for reversal on appeal").

For the reasons set forth above, the judgment of the district court is hereby AFFIRMED.

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